



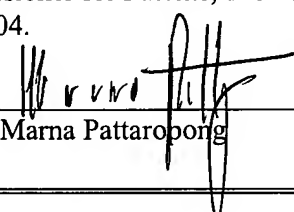
PATENT  
Attorney Docket No. ASC-022CPC1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Wu *et al.*  
SERIAL NO.: 10/603,852 GROUP NO.: 2811  
FILING DATE: June 25, 2003 EXAMINER: Not yet assigned  
TITLE: ETCH STOP LAYER SYSTEM

**CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8**

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 7<sup>th</sup> day of January, 2004.

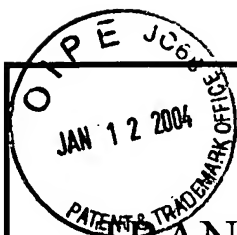
  
Marna Pattaropong

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith are:

1. Transmittal Form (1 pg.);
2. Supplemental Information Disclosure Statement (2 pgs.);
3. Form PTO-1449 (3 pgs.);
4. Cited References C43-C69;
5. Return Receipt Postcard; and
6. Certificate of First Class Mailing.



# TRANSMITTAL FORM

Application Serial Number	10/603,852
Filing Date	June 25, 2003
First Named Inventor	Wu
Group Art Unit	2811
Examiner Name	Not yet assigned
Attorney Docket No.	ASC-022CPC1
Patent No.	Not applicable
Issue Date	Not applicable

## ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form	<input type="checkbox"/> Copy of Notice to File Missing Parts of Application	<input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences
<input type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets _____]	<input type="checkbox"/> Formal Drawing(s)	<input type="checkbox"/> Appeal Brief (in triplicate)
<input type="checkbox"/> Petition for Extension of Time	<input type="checkbox"/> Request For Continued Examination (RCE) Transmittal	<input type="checkbox"/> Status Inquiry
<input checked="" type="checkbox"/> Supplemental Information Disclosure Statement <input checked="" type="checkbox"/> Form PTO-1449 <input checked="" type="checkbox"/> Copies of IDS Citations (C43-C69)	<input type="checkbox"/> Power of Attorney (Revocation of Prior Powers)	<input checked="" type="checkbox"/> Return Receipt Postcard
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8
<input type="checkbox"/> Sequence Listing submission <input type="checkbox"/> Paper Copy/CD <input type="checkbox"/> Computer Readable Copy <input type="checkbox"/> Statement verifying identity of above	<input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application	<input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8
	<input type="checkbox"/> Small Entity Statement	<input type="checkbox"/> Additional Enclosure(s) (please identify below)
	<input type="checkbox"/> CD(s) for large table or computer program	
	<input type="checkbox"/> Amendment After Allowance	
	<input type="checkbox"/> Request for Certificate of Correction <input type="checkbox"/> Certificate of Correction (in duplicate)	

## CORRESPONDENCE ADDRESS

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High Street Tower  
125 High Street  
Boston, MA 02110  
Tel. No.: (617) 248-7000  
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## SIGNATURE BLOCK

Respectfully submitted,  
  
Date: January 8, 2004  
Reg. No. 44,381  
Tel. No.: (617) 310-8327  
Fax No.: (617) 248-7100  
  
  
Natasha C. Us  
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Testa, Hurwitz & Thibault, LLP  
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PATENT  
Attorney Docket No. ASC-022CPC1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT(S):        Wu *et al.*  
SERIAL NO.:            10/603,852                      GROUP NO.:            2811  
FILING DATE:        June 25, 2003                      EXAMINER:            Not yet assigned  
TITLE:                ETCH STOP LAYER SYSTEM

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. Copies of the publications are enclosed.

**REMARKS**

In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed (CHECK ONE):

- ☒ (1) within three (3) months of the **filing date** of a national application other than a continued prosecution application under 37 C.F.R. 1.53(d), or within three (3) months of the **date of entry of the national stage** as set forth in 37 C.F.R. 1.491 in an international application, or before the mailing of the **first Office action** on the merits, or before the mailing of a **first Office action** after the filing of a request for continued examination under 37 C.F.R. 1.114; or
- ☐ (2) after the period defined in (1) but before the mailing date of a **final action** or a **notice of allowance** under 37 C.F.R. 1.311, and
- ☐ the requisite Statement is below, **OR**
- ☐ the requisite fee under 37 C.F.R. 1.17(p), namely **\$180.00**, is included herein, or

- ☐ (3) after the mailing date of a **final action** or **notice of allowance** but before the payment of the **issue fee**, **AND**
- ☐ the requisite Statement is below, **AND**
- ☐ the requisite petition fee under 37 C.F.R. 1.17(p), namely **\$180.00** is included herein.


It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

Applicants believe that no fees are due for this paper to be entered and considered, but the Commissioner is hereby authorized to charge Deposit Account No. 20-0531 for any required fees that may be due.

Respectfully submitted,

Date: January 8, 2004  
Reg. No. 44,381

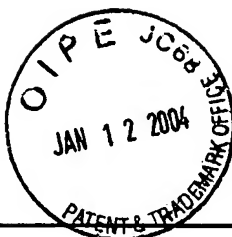
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125 High Street  
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FORM PTO - 1449				ATTORNEY DOCKET NO.: ASC-022CPC1					
SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT				APPLICANT(S): Wu <i>et al.</i>					
				SERIAL NO.: 10/603,852					
				FILING DATE: June 25, 2003      GROUP: 2811					
U.S. PATENT DOCUMENTS									
EXAM. INIT.		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE		
FOREIGN PATENT DOCUMENTS									
EXAM. INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)
OTHER ART, JOURNAL ARTICLES, ETC.									
EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)								
	C43	Batterman, "Hillocks, Pits, and Etch Rate in Germanium Crystals," <u>Journal of Applied Physics</u> , Vol. 28, No. 11 (November, 1957), pp. 1236-1241.							
	C44	Bohg, "Ethylene Diamine-Pyrocatechol-Water Mixture Shows Etching Anomaly in Boron-Doped Silicon," <u>Journal of the Electrochemical Society</u> , Vol. 118, No. 2 (February 1971), pp. 401-402.							
	C45	Desmond <i>et al.</i> , "The Effects of Process-Induced Defects on the Chemical Selectivity of Highly Doped Boron Etch Stops in Silicon," <u>Journal of the Electrochemical Society</u> , Vol. 141, No. 1 (January 1994), pp. 178-184.							
	C46	Ehman <i>et al.</i> , "Morphology of Etch Pits on Germanium Studied by Optical and Scanning Electron Microscopy," <u>Journal of Applied Physics</u> , Vol. 41, No. 7 (June 1970), pp. 2824-2827.							
	C47	Feijóo <i>et al.</i> , "Etch Stop Barriers in Silicon Produced by Ion Implantation of Electrically Non-Active Species," <u>Journal of the Electrochemical Society</u> , Vol. 139, No. 8 (August 1992), pp. 2309-2313.							
	C48	Fitzgerald, "GeSi/Si Nanostructures," <u>Annual Review of Materials Science</u> , Vol. 25 (1995), pp. 417-454.							
	C49	Frank, "Orientation-Dependent Dissolution of Germanium," <u>Journal of Applied Physics</u> , Vol. 31, No. 11 (November 1960), pp. 1996-1999.							
EXAMINER					DATE CONSIDERED				



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		FILING DATE: June 25, 2003      GROUP: 2811	
OTHER ART, JOURNAL ARTICLES, ETC.			
EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)		
	C50	Ghandi <i>et al.</i> , "Chemical Etching of Germanium," <u>Journal of the Electrochemical Society</u> , Vol. 135, No. 8 (August 1988), pp.2053-2054.	
	C51	Herzog <i>et al.</i> , "X-Ray Investigation of Boron- and Germanium-Doped Silicon Epitaxial Layers," <u>Journal of the Electrochemical Society</u> , Vol. 131, No. 12 (December 1984), pp.2969-2974.	
	C52	Holmes, "The Orientation Dependence of Etching Effects on Germanium Crystals," <u>Acta Metallurgica</u> , Vol. 7, No. 4 (April 1959), pp. 283-290.	
	C53	Hunt <i>et al.</i> , "Selective Etch Stop by Stress Compensation for Thin-Film BESOI," <u>1990 IEEE/SOI Technology Conference</u> , (October 2-4, 1990), pp.145-146.	
	C54	Jaccodine, "Use of Modified Free Energy Theorems to Predict Equilibrium Growing and Etching Shapes," <u>Journal of Applied Physics</u> , Vol. 33, No. 8 (August 1962), pp. 2643-2647.	
	C55	Kern, "Chemical Etching of Silicon, Germanium, Gallium, Arsenide, and Gallium Phosphide," <u>RCA Review</u> , Vol. 39 (June 1978), pp. 278-308.	
	C56	Lang <i>et al.</i> , "Bulk Micromachining of Ge for IR Gratings," <u>Journal of Micromechanics and Microengineering</u> , Vol. 6, No.1 (March 1996), pp. 46-48.	
	C57	Leancu <i>et al.</i> , "Anisotropic Etching of Germanium," <u>Sensors and Actuators</u> , A46-47 (1995), pp. 35-37.	
	C58	Lehmann <i>et al.</i> , "Implanted Carbon: An Effective Etch-Stop in Silicon," <u>Journal of the Electrochemical Society</u> , Vol. 138, No.5 (May 1991), pp. 3-4.	
	C59	Palik <i>et al.</i> , "Ellipsometric Study of the Etch-Stop Mechanism in Heavily Doped Silicon," <u>Journal of the Electrochemical Society</u> , Vol. 132, No. 1 (January 1985), pp. 135-141.	
	C60	Palik <i>et al.</i> , "Study of Bias-Dependent Etching of Si in Aqueous KOH," <u>Journal of the Electrochemical Society</u> , Vol. 134, No. 2 (February 1987), pp. 404-409.	
	C61	Palik <i>et al.</i> , "Study of the Etch-Stop Mechanism in Silicon," <u>Journal of the Electrochemical Society</u> , Vol. 129, No. 9 (September 1982), pp.2051-2059.	
	C62	Petersen <i>et al.</i> , "Silicon as a Mechanical Material," <u>Proceedings of the IEEE</u> , Vol. 70, No. 5 (May 1982), pp. 420-457.	
	C63	Rai-Choudhury <i>et al.</i> , "Doping of Epitaxial Silicon," <u>Journal of Crystal Growth</u> , Vol. 7 (1970), pp. 361-367.	
EXAMINER		DATE CONSIDERED	



<b>FORM PTO - 1449</b>		<b>ATTORNEY DOCKET NO.: ASC-022CPC1</b>	
<b>SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT</b>		<b>APPLICANT(S): Wu et al.</b>	
		<b>SERIAL NO.: 10/603,852</b>	
		<b>FILING DATE: June 25, 2003      GROUP: 2811</b>	
<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>			
<b>EXAM. INIT.</b>	<b>OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)</b>		
	C64	Raley <i>et al.</i> , "(100) Silicon Etch-Rate Dependence on Boron Concentration in Ethylenediamine-Pyrocatechol-Water Solutions," <u>Journal of the Electrochemical Society</u> , Vol. 131, No. 1 (January 1984), pp. 161-170.	
	C65	Senna <i>et al.</i> , "Gallium Doping for Silicon Etch Stop in KOH," <u>Transducers '95/Euroensors IX</u> , the 8 <sup>th</sup> International Conference on Solid-State Sensors and Actuators and Euroensors IX, Stockholm, Sweden, June 25-29, 1995, pp. 194-195.	
	C66	Soderbarg, "Fabrication of BESOI Materials Using Implanted Nitrogen as an Effective Etch Stop Barrier," <u>1989 IEEE SOS/SOI Technology Conference</u> , (October 3-5, 1989), pp. 64.	
	C67	Sundaram <i>et al.</i> , "Electrochemical etching of Silicon by Hydrazine," <u>Journal of the Electrochemical Society</u> , Vol. 140, No. 6 (June 1993), pp.1592-1597.	
	C68	Sze, " Physics of Semiconductor Devices," (1991).	
	C69	Vol'fson <i>et al.</i> , "Fundamental Absorption Edge of Silicon Heavily Doped with Donor or Acceptor Impurities," <u>Soviet Physics Semiconductors</u> , Vol. 1, No. 3 (September 1967), pp. 327-332.	
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>	

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